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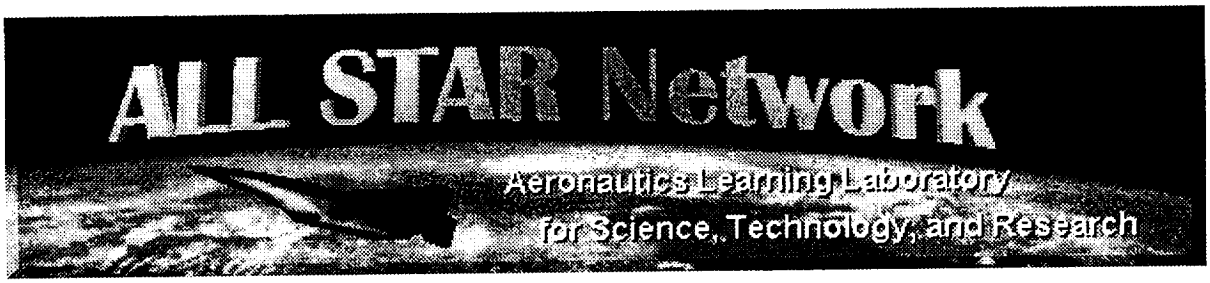


# NASA ALLSTAR Project

## Aeronautics Learning Laboratory for Science, Technology, and Research (ALLSTAR)
## http://www.allstar.fiu.edu/

**Annual Report**

**July 1, 1996 - June 30, 1997**

**Dr. Cesar Levy**
**Dr. M.A. Ebadian**
**Florida International University**
**Mechanical Engineering Department**
**Miami, FL 33199**

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**Contract #: NCC2-917**

**e-mail: levy@eng.fiu.edu**

# NASA ALLSTAR PROGRAM

**Annual Report: 1996-1997**

MILESTONE ACCOMPLISHMENTS

The July '96-June '97 grant year was a busy one for ALLSTAR. We continued the selection of materials for level 1 and level 3 modules. We created a new gallery of pictures (thanks to Lee Duke and others from Dryden). We are creating a video gallery based on videos from NASA Dryden.

We completed level 1 modules and only need a final review of the modules by the team evaluators before moving the modules to the public site. We started the development of our "Teacher Resource Guide to ALLSTAR material" in which we tied our material into the national standards. Level 3 modules are being developed for expected release by October, 1997.

We had a successful teachers workshop in December, 1996. We introduced ALLSTAR to twelve science and history teachers from Dade County Public Schools (DCPS). We tested the use of the ALLSTAR material with FIU's FLAME program and in the Dade County Public Schools (DCPS) that support FLAME, both of which include a high number of minority students interested in science and engineering. We are continuing to test the material with FLAME students during their summer 97 Summer Institute. We also presented the material at NSTA, NCASE, IITA-September 96, and IITA-May 97 meetings.

We shipped two kiosks to Coral park Senior High School and Braddock Senior High Schools. The two schools have the highest number of minority students in the state of Florida (85%-90% Hispanic). We had meetings with other schools for kiosk delivery, but, apparently the schools are not as responsive to our approach as we expected them to be. We also encountered a security issue with the kiosks after students from Braddock Senior High accessed the system files and deleted parts of the hard drive. We spent nearly a month consulting with Microsoft regarding a solution for that issue. In February 1997, a solution was found and the kiosks were updated.

The BBS 1-800 telephone number became operational from August 1996. Prime coordinated with NASA LaRC and TRCs for scale-up of ALLSTAR and performed a live demonstration of the software in Virginia schools and at conventions.

We also are scheduled to start working on the software marketing and commercialization plans. In June 24-25, 1997 we will brief the Senior Advisory Group about the progress of the project in the last grant year as well as brainstorm the marketing and commercialization issues of the Scale-up and the web material.

The following sections detail the monthly actions of the ALLSTAR team to meet its milestones.

*July 1996*

The web site's search engine started working for any word(s) used in the site. Work continued on developing Director Shockwave animated images. The latest animation file completed was of a combustion engine's firing cycle.

The BBS was online--Prime has completed the initial baseline of the Bulletin Board System. In that month the bulletin board system was online with a toll free access to users outside of the 301 area code.

Interaction With NASA Langley--Prime Technologies prepared a presentation for NASA Langley Office of Education Programs regarding the establishment of on-line discussion groups and ALLSTAR Network scale-up activities.

We had the PDR on July 17 with Mark Leon, Christiy Budenbender, Sam Massenberg, Pat Kaspar and Shelley Canright representing NASA. At the PDR, we explained our design strategy and the problems we faced during the first year. The NASA team was given a tour of the FIU facility and its ISDN connection to the DCPS schools, and, also, two of the thirteen schools in which ALLSTAR connections will exist were visited.

During the PDR visit, most of the problems between Mark Leon's office and this project were cleared up.

*August 1996*

During this month, Florida International University's Mechanical Engineering Department moved into the Center for Engineering and Applied Sciences, a more spacious off-campus facility. This move has impacted development efforts due to relocating the system network. The Department of Mechanical Engineering has dedicated an office for the NASA ALLSTAR Project coordinator. Planning for the Teacher's Workshop in December was initiated with Dade County Public Schools System (DCPS).

An ALLSTAR Project brochure was prepared for the September, 1996 Principal Investigator's Conference in Washington, DC.

Work was continued on the development of knowledge review forms. On these forms, the students choose their answers from a selection of possible answers and submit the form when completed. Their choices are submitted to a database for evaluation. Database formats were under investigation to determine the best method for gathering metrics and matching with registration information.

The pilot kiosk underwent final implementation testing. Paul Dunn (a Science teacher) from Coral Gables Senior High School, Miami, FL, assisted us with the deployment of the first pilot kiosk in that school. Input from the students and teachers led to further system improvements.

The system for Miami Dade Community College was delivered for setup to Dr. Nahas' representative. Under an agreement with the project director, MDCC is using that computer system for Level 3 development until Level 3 is ready for student use. At that time, the system will be transferred to the MDCC Kendall campus library for all students to use.

The bulletin board system was available for access from 9am to 5pm EST and can be reached at (301) 907-0892. The toll free number for access outside of the Washington DC Metropolitan area is (800) 913-9622.

***September 1996***

The ALLSTAR Principal Investigator (Dr. Levy) and our senior programmer (Jay Jeffries) attended the IITA Conference in Washington, DC. Contacts were made with NASA administrators to get information for our site as well as input/comments received by the other PIs and visitors about our web site. Brochures were created specifically for this conference and distributed to administrators, visitors and other PIs.

More pictures were scanned to attract the students to the knowledge review forms. Web statistics packages were examined by the programming team for implementation on the server. The text material for Level 1 was collected.

Meeting were held on September 18th and 25th at MDCC to standardize the platforms that MDCC uses to create the Level 3 material.

Prime Technologies met with Dr. Massenberg and his staff on the issue of NASA scientists and engineers participating. Prime Technologies began work on a prototype of the front-end software for the scale-up phase. This prototype was created in conjunction with input from NASA scientists and engineers who evaluated the initial front-end version for the kiosk.

***October 1996***

On October 11$^{th}$, the ALLSTAR coordinator (Yair Levy) had a meeting with Prime Technologies regarding the updates and changes needed for the front-end software. These updates and changes were based on input from Mr. Paul Dunn, a Coral Gables Sr. High School science teacher. As a result of suggestions and comments made during this meeting, Prime Technologies made system design and programming changes to the front-end prototype software.

A meeting on October 29, 1996, was called by the ALLSTAR Principal Investigator (Dr. Levy) to brief the Senior Advisory Group composed of Dr. Sam Massenberg from LaRC, Dean Gordon Hopkins of CED, FIU, and Dr. Isiah Blankson of NASA Headquarters; and, the ALLSTAR team members, on the progress of our project. The meeting took place at the FIU Mechanical Engineering Department. The FIU Team demonstrated the prototype of the kiosk machine, the public Internet site, the non-public development site and the current material intended for Level 1. MDCC demonstrated the initial material developed by them on their test site for Level 3. Prime Technologies spoke of their coordination with Office of Education, LaRC, on the scale-up effort and provided a worksheet of what they were to accomplish in the coming months.

A teacher workshop was planned for December 5th. We sent letters of invitation to attend to seven Dade County schools: one middle school and six high schools. The number of schools equals the number of kiosks we had available to place at that time. We also informed the Dade County Public School Superintendent of this workshop since there was a change of leadership of the DCPS during this grant.

Prime Technologies continued its on-going coordination and planning with NASA LaRC Office of Education for the design and development of the ALLSTAR "Scale-up" application. In addition, the team continued its on-going programming of the scale-up software. The coordination efforts included receipt of input from 18 LaRC scientists and engineers for both the Careers Exploration section of the Scale-up application and the establishment of the Electronic Discussion Forums. Prime Technologies prepared a preliminary roadmap of activities and milestones associated with both the scale-up effort and the discussion forums for review and comment by NASA LaRC, prior to being finalized.

***November 1996***

A meeting was called by the ALLSTAR Principal Investigator (Dr. Cesar Levy) on November 8th, to discuss future standardization of file sizes and topics for Level 3. Dr. Cesar Levy and Dr. Tony Nahas, outlined the Level 3 work plan and delivery dates for that material, in addition to their existing material, at that time, on the Introduction to Engineering module, the History of Flight module, Principles of Flight module.

On November 18th, the ALLSTAR coordinator (Mr. Yair Levy) had a meeting with Coral Gables Senior High's principal and the school media specialist, along with the ALLSTAR key person in the school, Mr. Paul L. Dunn (Science teacher). Mr. Yair Levy briefed the school personnel about the ALLSTAR project, its vision, benefits and the pilot kiosk, which they were to receive. The pilot kiosk prototype was implemented on November 19th, in the school library.

A modification to the page header format for all pages was completed to ease navigation within the ALLSTAR Network Web Site.

Two discussion forums were established within the ALLSTAR Network web site this month. These allow the students and others to carry on a threaded discussion on a particular topic. The two forums are on the X-33 Shuttle Replacement Prototype and on the LoFLYTE Hypersonic Waverider Test Aircraft.

***December 1996***

The teacher workshop was held on the 5th of December. The workshop was very valuable to the ongoing development of our material. The teachers were very supportive and enthusiastic about the project. The teachers showed a lot of interest in using parts of the material in the classroom. Our teacher representative Mr. Paul Dunn attended the NSTA Global Summit in San Francisco at the end of the month.

Mr. Ruddy Ibarra, Engineering Information Center Director, provided us with a quote from Dell for the server upgrade and we processed the paperwork to buy the new server. We also considered an upgrade for Internet connectivity to a T1 line. Therefore, we asked to get a site review from RSPAC. We wanted to see if our Internet connectivity, at that time, was the access bottleneck to our site.

We began running the web statistics package. The preliminary executive report, which includes all the options of the software was pasted on the server for review. Our problem was that

these statistics were a combination of the ALLSTAR site and the FIU engineering site. Once the new server was to come on-line, the statistics would be only those for ALLSTAR.

More animations were created for the Level 1 material. We finished the animation of an airfoil experiment of blowing air on paper to show Bernoulli's principle and how lift is produced. There were three new interactive shockwave animations created for Level 1, and were incorporated into the Level 2 material as well.

Prime Technologies made modifications to the Kiosk Front-End software based upon requested changes suggested at the workshop at FIU. Prime Technologies staff also attended the ALLSTAR Teacher Workshop and supported the instruction on use of the Kiosk and provided instruction on how to access and use the ALLSTAR BBS.

Prime Technologies reviewed content material provided by LaRC on scientists and engineers who have agreed to be participants in the Electronic Discussion Forums (EDF). Prime Technologies coordinated with LaRC to obtain additional material related to the careers, areas of expertise, and associated projects of the respective participants. Prime Technologies continued its work on the development of the communications subsystem to the scale-up application. This subsystem was designed to facilitate electronic management of the EDF process, including "handling" questions and responses from multiple individuals and institutions. Students will be able to ask individual questions, have all questions organized (e.g., categorized) and aggregated, and distributed (via electronic upload/download) to the appropriate LaRC personnel for response. Prime Technologies continued its involvement in programming the Career Exploration section of the scale-up application, which includes the integration of aeronautics related video/audio content material.

***January 1997***

The presentation for the IITA conference in Dryden Flight Research Center on March 18-20 was created by Mr. Yair levy , the project coordinator, and was sent to all project members for input.

FrontPage 97 arrived and was installed on the server, the new features of the software allowed us to run spell checks on the site, and provided new image manipulation which wasn't available in the previous version.

More animations were created for the Level 1 material. We finished another animation of "how lift is produced?", showing velocity and pressure differences on a wing section. Principles of Aeronautics - Level 1 text was completed, pictures for this section were scanned and were being edited. This section now contains 11 exercises for middle/junior high school students.

Prime Technologies made new modifications to the Kiosk front-end software. They also created a screen saver showing pictures from the ALLSTAR Gallery for use on the kiosks when no students were using it.

The pilot kiosk located in Coral Gable Senior high was updated to include the newly developed material and the screen saver. The second kosk was shipped this month to Braddock High School in South Miami. The school has the largest minority student population in the state of Florida, about 90% Hispanic.

The SCALEUP applications development by Prime Technologies was divided into three major development phases, namely - The Basic Interface Design; Content Capturing and Integration; and Systems Consolidation. Prime Technologies team began capturing and cataloguing Scale up content including, digitizing aeronautics related video clips. In addition, they

completed the baseline version of the electronic discussion forum to be integrated with the SCALEUP application.

***February 1997***

Arrangements were made for presentations at the National Science Teachers Association (NSTA) conference in New Orleans, Louisiana, April 3-6, and National Congress of Aviation and Science Educators (NCASE) in Houston, Texas, April 2-5. We planned to have a booth demonstrating the web site material as well as the benefits science teachers can have from the project

More animations were created for the Level 1 material. We worked on an exploding view of an airplane to animate the different parts of the aircraft. Principles of Aeronautics - Level 1 was almost completed. This section contain 11 exercises for middle/junior high school students is was under review. Careers in Aeronautics - Level 1 text was under development and pictures were being gathered.

The pilot kiosk located at Braddock Senior high was compromised by the students, parts of the hard drive were deleted. Software were reloaded again and we began looking at ways to restrict student's access to the system files. The third kiosk was shipped to Coral Park High School in South Miami. The school also has a large minority student population, about 85% Hispanic.

During the month, Prime Technologies continued with the development of the scale-up application. They completed the integration of the functionality of the front-end, interactive gallery and the discussion forum. In addition, they continued to coordinate with NASA Langley to identify and capture content material including static images, video clips and text for incorporation with the application. Prime's team tested the integrated application.

***March 1997***

Mr. Yair Levy and Mr. Jay K. Jeffries attended the conference at the Dryden Flight Research Center. The workshop allowed the team to evaluate our project vis-a-vis the other IITA K-14 aeronautics projects. Furthermore, the workshop allowed for collaboration between projects and enabled us to have new sources of material for our web site as well as providing other projects with our knowledge and experience with the FrontPage software.

A new URL was ordered by the University for our project (http://www.allstar.fiu.edu/). The new URL was to be installed on our new ALLSTAR's Pentium Pro 200 server as soon as it was received. We hired a new programmer for our team, Ruby Mallach. She is an undergraduate Mechanical Engineering student. More pictures were added to our beta site gallery for review. Careers in Aeronautics - Level 1 text material was completely inputted and pictures continued to be gathered. This material was placed on our beta site for review.

During the past month Prime Technologies finished the design and development of all interfaces to the baseline version of the ALLSTAR scaleup application, including the electronic discussion forum. In conjunction with NASA LaRC, Prime was continuously identifying, acquiring and updating the databases with contents related to various aspects of the application. During March 1997, Prime Technologies participated in a major educational conference, sponsored by two organizations, NAMEPA (National Association of Minority Public Administrators) and WEPAN (Women in Engineering Program Advocates Network). Prime Technologies set up a NASA Education display, provided by LaRC. The team also made a presentation of the beta version of

the ALLSTAR scaleup software. The feedback was very positive and a number of individuals expressed interest in obtaining a copy of it upon general release.

*April 1997*

Dr. Cesar Levy called for an ALLSTAR marketing meeting in June, 1997. This meeting will include a Senior Advisory Group (SAG) briefing as well as brainstorming the marketing issues.

Dr. Cesar Levy and Mr. Jay K. Jeffries attended and manned a booth in the NCASE convention, Houston, TX, April 2-5, 1997. They advertised and demonstrated the kiosk version of the project as well as established a network of interested people for scaleup. Great interest was shown by the hierarchy of the Civil Air Patrol in using the ALLSTAR material in cadet classes. Many asked about a CD-ROM version. About 500 brochures and fliers were distributed.

Mr. Yair Levy and Mr. Paul Dunn attended and manned a booth at the NSTA convention, in New Orleans, LA, April 3-6, 1997. They presented the project for use by science teachers in their classrooms. They provided a live demonstration of the web site (or Kiosk) and also the beta site. They received some feedback from the teachers regarding the Level 1 material. They supplied more than 2,500 brochures and fliers in promoting the benefits of the project.

The new x-series gallery had moved to the public site on April 10, and garnered much attention, especially the "declassified" X-36 picture. We thank Lee Duke and Marty Curry, DFRC, for the pictures.

Principles of Aeronautics - Level 1 was moved from the beta site and open to the public. We began working to create the teacher resource guide that will cover the objectives of the material in the 4-8 grade classroom. History of Aeronautics - Level 1 text material began development.

Dr. Cesar Levy and Mr. Yair Levy met the Miami Dade Community College team on April 25 to follow the development of level 3 material.

Prime Technologies continued to incorporate content material as soon as it was obtained. The Office of Education, LaRC, continued to work with Prime to either identify appropriate videos or produce new ones for the scale-up effort. The development of video content had involved on-going coordination with NASA LaRC staff. Prime Technologies captured, digitized, and integrated video contents on some portions of the discussion topics, including Aeronautics, High Speed Research, and Materials and Structures. These and all other topics will be updated on a continuous basis. In anticipation of the amount of the information that will be stored in the ALLSTAR CAREERS application, Prime has decided to extend the data controls to contain additional sub-topics.

*May 1997*

Preparations were under way for the ALLSTAR marketing meeting in June 24-25, 1997. This meeting will include a Senior Advisory Group (SAG) briefing as well as brainstorming the marketing issues.

Dr. Cesar Levy and Mr. Yair Levy attended the IITA conference, San Jose, May 18-21, 1997. The conference highlighted some important aspects that we started to pursue such as the addition of a Teacher Resource Guide to our site. This section will include national standards for each module in all three levels as well as table of contents of the site in order to save teachers the time of having to "surf" our site to find curriculum enhancing information.

This month, the new ALLSTAR server had been placed online and the project URL is now ***http://www.allstar.fiu.edu/***

Principles of Aeronautics - Level 1 materials was moved to the public site and generated positive feedback from the users. It can be seen at: ***http://www.allstar.fiu.edu/aero/princ1.htm***

History of Aeronautics - Level 1 was completed but just needed to undergo a final review by the team before being moved to the public site. Career of Aeronautics - Level 1 was also almost completed. We need to scan some more pictures in to make the text more appealing to the students.

A solution to the security issue for the kiosk was found. This will disable the students' access to the system files and will not allow anyone, beside the system administrator, from changing files on the kiosk.

Mr. Yair Levy had a meeting with the Principal and the Assistant Principal of curriculum development of Homestead Senior High on May 13th, 1997, regarding placement of a kiosk at their school.

Prime Technologies continued to incorporate content, extend design as appropriate, and enhance the overall SCALEUP application for better performance. The Office of Education, LaRC, produced videos of interview sessions with the NASA personnel for use in ALLSTAR Careers. Most of the interview sessions were completed and a total of thirteen video tapes were produced and sent to Prime. Prime also ordered some more videos tapes on other categories. This month witnessed remarkable improvements in that most of the problems and inconsistencies have been resolved, including audio/video synchronization, and video quality. The data structures were modified in some part to accommodate additional sub-topics.

Prime Technologies conducted demonstrations of the application to school representatives of Wakefield High School, in Arlington, VA. They received good reviews and recommendations. Another demonstration was scheduled for some students of Wakefield High School, who were part of the targeted users, in order to get their feedback.

***June 1997***

Several discussions with members of the Business school and the Small Business Development Center, FIU were had in preparation for the June 24-25 meeting on marketing/commercialization effort. Plans for the meeting were finalized.

A meeting with MDCC was had on 16 June discussing the progress of the Level 3 material. More feedback was provided on the Level 3 material that exists on the beta site.

Prime Technologies, MDCC, and FIU will provide a review of what has been accomplished to date to the Senior Advisory Group (SAG) at the June 24-25 meeting.

***Summary of Accomplishments To Date***

We have a new URL with a new server that will be more responsive to information requests on the web. We have a statistics package (WebTrends) that providing 9 reports each midnight so we can track who accesses our site, when, where from, etc.

We have over 450 web pages on the site and more will be uploaded after review.

We have Level 1 materials already on the site ahead of schedule and the information for Level 2 is also being updated.

We are making good progress on Level 3 materials that are due to be on line in October 97, as per the timeline in the original proposal.

Prime Technologies is on schedule with the scale-up applications and information gathering. Prime has also created the software that can convert captured data from the lessons to the metrics required to evaluate the goals of this project.

We are planning marketing/commercialization efforts as per timeline of the original proposal. We are evaluating possible sponsors.

Dr. Massenberg, Director, Office of Education, LaRC, has been very supportive of our effort. We would like to thank Mark Leon, Christiy Budenbender, Lee Duke and the other CAN PIs for their input and comments.

***PLANS FOR JULY 97- JUNE 98***

We plan to continue receiving student information for our metrics evaluations and website usage. After our brainstorming session, we will define our customer base and do a marketing survey to determine how best to commercialize our product. Furthermore, we intend to find sponsors for our product and commercialize it. We will also determine how best to maintain our website.